

REMARKS

Claims 1, 3-15, and 17-18 and 30-49 are now pending in the application. The preceding amendments and the following remarks are believed to be fully responsive to the outstanding Office Action and are believed to place the application in condition for allowance. The amendments made herein clarify the subject matter previously claimed and no new matter is added. Furthermore, the amendments to the claims merely expressly recite subject matter that was inherently recited in the previously pending claims. As such, no new issues are raised and no further consideration and/or search is required. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained therein.

REJECTION UNDER 35 U.S.C. § 102

Claims 4-14, 19-38 and 40-49 stand objected to for certain informalities. By this amendment, claims 4-8 and 30-33 and 40-43 are amended to address the examiner's concerns. The remaining objected to claims are dependent claims and inherit the correction to the base claim. Favorable consideration of these amendments is respectfully requested.

REJECTION UNDER 35 U.S.C. § 103

Claims 1 and 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Saitoh in view of Chiu. This rejection is respectfully traversed. Claim 1 calls for a resist iayer having an "inner surface having a portion projecting inwardly in the through-hole."

Claim 1 also calls for a “metal post on the pad . . . [with] a side surface having a recess formed therein.

No prior art reference teaches or suggests the claimed resist layer nor the claimed post. Saitoh fails to disclose a resist with a projection. Saitoh further fails to disclose forming a post with a recess by using such a projection. Chiu fails to cure these deficiencies. In contrast, Chiu discloses a post having a reduced diameter tip. A post with a reduced diameter tip is different from the claimed post with a recess in a side surface thereof. The reduced diameter tip of Chiu surrounds the tip. As such it is not “in a side surface” as claimed. Also, a reduced diameter tip is not a “recess” giving that term its ordinary meaning in the art and when read in light of applicant’s specification. Rather, the claimed recess is confined to a side surface of the post and does not encircle the post. Further, Chiu fails to teach a resist with a projection for forming the claimed post with a side surface recess. As such, even if the proposed combination were made, the combination would not yield the claimed invention.

Claim 5 depends from claim 1 and should be allowable for at least the same reasons as set forth above.

Claims 4, 40, and 42 are rejected under 35 U.S.C. § 103 as being unpatentable over Saitoh in view of Chen. This rejection is respectfully traversed. Claim 4 calls for forming a resist layer to have through-holes located over a pad. Saitoh fails to teach such a resist layer having holes over the pad. Chen also fails to teach such a resist layer having holes over the pad. In contrast, Chen merely discloses a copper layer 3 with a grid structure 6 thereon. The grid structure 6 includes passivating material 4

which is formed by patterning a photoresist 5. The spaces 7 between the structures 6 are etched. See column 7, lines 25 – 39.

Inasmuch as the spaces 7 are etched, one skilled in the art would not modify the teachings of Saitoh with the teachings of Chen. Saitoh teaches the use of a resist to form posts. In contrast, Chen teaches the use of etching to form spaces 7 in a passivating material 4 which yields a grid structure 6. Chen teaches directly away from using the resist technique of Saitoh. As such, these teachings are not properly combinable. Further, even if the combination were made, the combination would not yield the claimed invention. Rather, a solid post would be provided by way of the teachings of Saitoh and, at best, the post would then be etched by way of the teachings of Chen. This is different from the claimed invention. As claimed, the resist layer over the pad includes holes. The combination of references does not teach or suggest this feature.

Claims 40 and 42 depend from claim 4 and should be allowable for at least the same reasons as stated above.

Claims 6-8, 41, and 43 -49 also stand rejected. These claims are dependent and should be allowable for at least the same reasons as stated above with respect to their base claims.

Claims 15 and 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Saitoh in view of Chiu. This rejection is respectfully traversed. Claim 15 calls for a plurality of metal posts, each metal post having a side surface in which is formed a recess for receiving soldering or brazing material.

As stated above, no prior art reference teaches or suggests the claimed post. Saitoh fails to disclose forming a post with a recess. Further, Chiu merely discloses a post having a reduced diameter tip. A post with a reduced diameter tip is different from the claimed post with a recess in a side surface thereof.

Claim 18 depends from claim 15 and should be allowable for at least the same reasons as set forth above.

Claim 17 stands rejected under 35 U.S.C. § 103 as being unpatentable over Saitoh in view of Chikawa. This rejection is respectfully traversed. Claim 17 calls for a plurality of metal posts, each metal post having a hole exposing the pad.

Saitoh fails to teach such a metal post having a hole exposing the pad. Chikawa also fails to teach a metal post having a hole exposing the pad. In Fig. 2F, Chikawa shows a bump electrode 7 on an electrode 3. The bump electrode 7 is solid. There is no hole in bump electrode 7 exposing the electrode 3. While the electrode 3 is exposed around the perimeter of the bump electrode 7, no hole is provided as claimed. As such, even if the combination were made, the combination would not yield the claimed invention. Rather, a solid post would be provided by way of the teachings of Saitoh and, at best, the post would have a smaller diameter than that of the pad. This is different from the claimed invention. As claimed, each metal post has a hole exposing the pad. The combination of references does not teach or suggest this feature.

ALLOWABLE SUBJECT MATTER

Applicant thanks the examiner for the indication that claims 3 and 30-39 would be allowable if rewritten to overcome the objections for certain informalities. Applicant

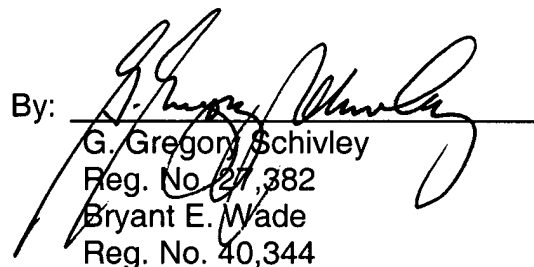
respectfully submits that the above amendments address these informalities. As such, claim 3 and 30-39 should be in condition for allowance.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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